Day 2 GeoServer进行矢量切片服务发布

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矢量切片：矢量不同于栅格数据，比较灵活，数据完整，因此综合矢量数据和栅格切片地图的优势，会是一个比较不错的方案，这就是 “矢量切片”。

矢量切片的优点：

* + 对于栅格切片，更灵活，更细粒度的数据划分，要素级别；
  + 数据信息接近无损，但体积更小，请求指定地物的信息，直接在客户端获取，无需再次请求服务器；
  + 样式可改变和定制（重点），矢量切片可以在客户端或者服务器端渲染，可以按照用户赋予的样式渲染；
  + 对于原始矢量数据，更小巧，采用了重新编码，并进行了切分，只返回请求区域和相应级别的数据；
  + 数据更新快，或者说是实时的，当数据库中的空间数据变化后，再次请求的数据是改变后的，在客户端渲染后既是最新的情况；
  + 更灵活，可以只是返回每个专题数据的图层，而不是像栅格切片把很多专题数据渲染在一个底图中。

**不可编辑**

需要注意的是不要被矢量切片的矢量误导，虽然是矢量格式，并不意味者你可以编辑它们，矢量切片是为了读取和渲染优化的格式，如果你想在客户端编辑要素，最适合的是使用 OGC 的 WFS。

**切片过程**

切片生成过程，实际是空间数据到图片数据的转换过程，空间坐标消失了，转而形成屏幕坐标，图片没有空间参考，通过编号来表示排列次序。

矢量切片也是类似的，且因其为原始数据，体积较大，设计初衷是便于存储且存储结构清晰，并没有为网络传输优化，因此需要重新编码（我们这里称‘组织数据结构’为编码）。矢量数据一般分为空间坐标和属性数据，因此编码分为空间坐标和属性数据两部分的编码，重新编码的中心思想就是不损失元数据细节的情况下，尽量减小冗余，缩小数据体积。

**1、GeoWebCache简介**

GeoWebCache本质就是一种切图工具，可以单独下载进行配置使用，但是在geoserver1.7版本之后，geoserver本身集成了GeoWebCache这个模块，这次介绍的GeoServer版本为2.13.1

**2、打开GeoServer安装目录下的web.xml文件**

Search WEB-INF 
2.13.1 INF 
Name 
Date modified 
2018-6-269:11 
2018-6-269:11 
dis cher-servlet.xml 
2017-6-20 6:55 
web.xml 
2018-1 26250 
;sion Design 
Type 
File folder 
File folder 
XML Document 
XML Document 

**3、在web.xml中添加如下内容，配置切片缓存目录**

<context-param>

<param-name>GEOWEBCACHE\_CACHE\_DIR</param-name>

<param-value>E:\GeoServer 2.13.1\webapps\geoserver\WEB-INF</param-value>

</context-param>

web xml 
1 
2 
3 
4 
S 
6 
9 
10 
11 
12 
// Sun Microsystems, 
DOCTYPE web-app PUBLIC 
— <web—app> 
< di spl a y —name oSe rve / di spl a y —name > 
conte x t —param> 
CACHE 
: \GeoServer .13.1 
< / context —par 
am—name > se rvi ce S tra tegy< / pa am—name > 
Inc. / /DTD Web Application 2 
"http: / ava . sun 

**4、重新启动GeoServer服务**

若出现**Caused by: java.io.IOException: Unable to establish loopback connection**错误，关闭本地防火墙即可。

文件夹E:\GeoServer 2.13.1\webapps\geoserver\WEB-INF中会多两个文件：tmp文件夹和geowebcache.xml文件

(E:) GeoServer 2.13.1 
Name 
2017-6-20 6:55 
webapps 
dispatcher-servlet.xml 
geowebcache.xml 
web.xml 
geoserver WES-INF 
Date modified 
2018-6-26 16:19 
2018-6-26 16:19 
2018-6-26 16:36 
2018-6-26 16:36 
2018-6-26 16:35 
Type 
File folder 
File folder 
File folder 
XML Document 
XML Document 
XML Document 
Size 
11 G 

如果不进行步骤3和4的配置，默认情况下切片存放目录在E:\GeoServer 2.13.1\data\_dir\gwc目录下

(E:) GeoServer 2.13.1 
Na me 
tmp 
data dir 
gwc 
Date modified 
2018-6-26 16:20 
2018-6-26 16:20 
Type 
File folder 
XML Document 
Size 
geowebcache.xml 

**5、矢量切片（方法1）**

* + 在浏览器中输入http://localhost:9898/geoserver/gwc/，进入gwc页面
  + GWC Home 
    unable to establish loopback corn 
    e http:// 
    local host: 9898/geoserver/gwc/ 
    GeoWebCache 
    Welcome to GeoWebCache version 1.13.1, buld 1.13.x/e219127b6e89d08f40b0796852db0636bdc322a2 
    unable to establish loopback corn 
    C] VS2010 C] Oracla C] OPENCV » 
    GeoWebCache is an advanced tile cache for WMS servers.lt supports a large variety of protocols and formats, including WMS-C, WMTS, KML, Google Maps and Virtual Earth. 
    Automatically Generated Demos: 
    A list of all the layers and automatic demos 
    WMTS 1.0.0 GetCapabiIities document 
    WMS 1.1.1 GetCapabiIities document 
    • TMS 1.0.0 document 
    • Note that the latter will only work with clients that are WMS-C capable. 
    • Omitting tiled—true from the URL will omit the TileSet elements. 
  1. 点击进入图层列表，选择需要切片的矢量seed this layer
  2. spearfish 
     uaeg] 
     EPSG:4326 
     Seed this layer 
     u_eg] 
     tasmania 
     uaeg] 
     EPSG:4326 
     Seed this layer 
     [ung, u_eg] 
     test:bj_road_in_city 
     uaeg] 
     EPSG:4326 
     Seed this layer 
     [ung, u_eg] 
     tiger ny 
     uaeg] 
     EPSG:4326 
     Seed this layer 
     u_eg] 
     uaeg] 
     EPSG:4326 
     u_eg] 
     uaeg] 
     EPSG:4326 
     u_eg] 
     uaeg] 
     EPSG:4326 
     [ung, u_eg] 
     tiger:giant_polygon 
     Seed 
     this layer 
     tiger:poi 
     Seed 
     this layer 
     tiger:poly_landmarks 
     Seed 
     this layer 
     true 
     true 
     true 
     true 
     true 
     true 
     true 
     EPSG:900913 
     EPSG:900913 
     EPSG:900913 
     EPSG:900913 
     EPSG:900913 
     EPSG:900913 
     EPSG:900913 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     OpenLayers: 
     KML: 
     KML: 
     KML: 
     KML: 
     KML: 
     KML: 
     KML: 
     [ung, 
     [ung, 
     [ung, 
     [ung, 
     [ung, 
     [ung, 
     [ung, 

* 1. test:b• road in_city 
     [QDL, neg] 
     EPSG:4326 
     Seed this layer 
     [ung, u_eg] 
     true 
     EPSG:900913 
     OpenLayers: 
     OpenLayers: 
     KML: 
     [ung, 

其中png对地图进行查看，拖动图层，滚动鼠标滚轮，以不同zoom水平查看图层，可以发现在缓存目录下生成了对应的缓存切片

* 1. Machine generated alternative text:
     GeoServer 2.13.1 
     Na me 
     EPSG 
     EPSG 4326 08 
     EPSG 4326 og 
     EPSG 4326 10 
     EPSG 4326 11 
     EPSG 4326 12 
     EPSG 4326 13 
     EPSG 4326 14 
     EPSG 4326 15 
     webapps 
     geoserver 
     WEB- INF 
     Date modified 
     2018-6-26 16:30 
     2018-6-26 16:52 
     2018-6-26 16:52 
     2018-6-26 16:52 
     2018-6-26 16:52 
     2018-6-26 16:52 
     2018-6-26 16:52 
     2018-6-26 16:52 
     2018-6-26 16:52 
     Type 
     File folder 
     File folder 
     File folder 
     File folder 
     File folder 
     File folder 
     File folder 
     File folder 
     File folder 

**6、矢量切片（方法2）预切图**

* 1. 点击seed this layer，进入切图配置页面
  2. GeoWebCache 
     List this Layer tasks (there are no tasks for other Layers) 
     Kill all 
     Tasks for Layer 'test:bj_road_in city'. Submit 
     List of currently executing tasks: 
     none 
     Refresh list 
     Please note: 
     This minimalistic interface does not check for correctness. 
     • Seeding past zoomlevel 20 is usually not recommended. 
     • Truncating KML will also truncate all KMZ archives. 
     Please check the logs of the container to look for error messages and progress indicators. 
     Here are the max bounds, if you do not specify bounds these will be used. 
     • EPSG:4326: 
     • EPSG:900913: 
     Create a new task: 
     Number of tasks to use: 
     Type of operation: 
     Grid Set: 
     01 
     Seed - generate missing tiles 
     EPSG:4326 , 

* 1. Create a new task: 
     Number of tasks to use: 
     Type of operation: 
     Grid Set: 
     Format: 
     Zoom start: 
     Zoom stop: 
     Modifiable Parameters: 
     Bounding box: 
     01 
     image/png 
     16 
     STYLES: line 
     These are optional, approximate values are fine. 
     Submit 
  2. 点击submit后开始进行切图。若想要停止切图，点击kill后面的submit停止执行切图过程。
  3. GeoWebCache 
     List this Layer tasks (there are no tasks for other Layers) 
     Kill all 
     Tasks for Layer 'test:bj_road_in city'. Submit 
     List of currently executing tasks: 
     none 
     Refresh list 

7、矢量切图（方法3）

* 1. 从http://localhost:9898/geoserver/web/中进入服务，选择tile cacheing下的tile layers
  2. ogo 
     GeoServer 
     About & Status 
     Server Status 
     n 
     GeoSep.cer Logs 
     Contact Information 
     About GeoSep.cer 
     Layer Preview 
     Workspaces 
     Lj Stores 
     Layers 
     Layer Groups 
     'O Styles 
     WMTS 
     wcs 
     WFS 
     WMS 
     Settings 
     Global 
     Image Processing 
     Raster Access 
     Tile Caching 
     Tile Layers 
     Caching Defaults 
     Ingged in as admin. 
     Tile Layers 
     Manage the cached layers published by the integrated GeoWebCache 
     O Add a new cached layer 
     Remove selected cached layers 
     Results 1 to 23 (out of 23 tems) 
     Type 
     Enabled 
     Search 
     Preview 
     Layer Name 
     nurc:Pk50095 
     spearfish 
     sf:restricted 
     tasmania 
     sf:archstes 
     tiger-ny 
     Disk Disk 
     BlobStore 
     Quota Used 
     N/A 
     N/A 
     N/A 
     N/A 
     N/A 
     N/A 
     N/A 
     N/A 
     Actions 
     Seed/Truncate Empty 
     Seed/Truncate Empty 
     Seed/Truncate Empty 
     Seed/Truncate Empty 
     Seed/Truncate Empty 
     Seed/Truncate Empty 
     Seed/Truncate Empty 
     Seed/Truncate Empty 

* 1. ın_ctv 
     Seed/Trunate 
     Emgtv 
  2. 进入方法2中的切图设置中
  3. 配置切图方案
  4. Tile Caching 
     Tile Layers 
     its 
     Gridsets 
     globStores 

* 1. Gridsets 
     Mana e the available ridsets or create a new one 
     O Create new gridset 
     Remove se ecte gri sets 

* 1. Name 
     Description 
     my_bj road 
     cache 
     Coordinate Reference System 
     EPSG 4326 
     Units: ' 
     Meters per unit: 111319.49079327358 
     Gridset bounds 
     Min X 
     -180 
     Min Y 
     fiRf5fi 
     EPSG:WGS 84... 
     Max Y 
     Max X 
     180 
     Compute from maximum extent of CRS 
     Tile nidth in pixels * 
     Tile height in pixels * 
     Tile Set 
     Define grids based on: 
     __gKtD 
     Resolutions 
     O 
     Level 
     Pixel Size 
     0 703125 
     0 3515625 
     0 0878g0625 
     Scale denominators 
     Scale 
     1: 
     1: 1,2555803571428573 
     1: 6277g01785714287 
     1: 3138gsoag28571433 
     Name 
     Tiles 
     2x1 
     8x4 
     16x8 
  2. Machine generated alternative text:
     Select a coordinate system. Use the search box to narrow the list 
     4326 
     description 
     WGS 84 
     Results 1 to 1 (out of 1 matches from 5,846 tams) 

* 1. 上图为查询参考坐标系过程
  2. 16 
     17 
     18 
     0Ю0001072ввзвоздв 
     О 00000536441 В02дв 
     0Ш00002ВВ220Д014Д 
     1: 0Ю3В3172716413226 
     1: о 01Д15ВВ35В20ВВ13 
     131,072 х 65,536 
     262,144 х 131,072 
     524,288 х 262, 144 
     Add zoom level 
     Сапсе' 

* 1. (E:) GeoServer 2.13.1 
     Name 
     2017-6-20 6:55 
     webapps 
     test_bj_road in_cit,' 
     tmp 
     dispatcher-servlet.xml 
     eowebcache.xml 
     geoserver WES-INF 
     Date modified 
     2018-6-26 16:19 
     2018-6-26 16:19 
     2018-6-26 17:02 
     2018-6-26 17:02 
     2018-6-26 17:18 
     2018-6-26 17:18 
     2018-6-26 16:35 
     Type 
     File folder 
     File folder 
     File folder 
     File folder 
     XML Document 
     XML Document 
     BAK File 
     XML Document 
     Size 
     geowebcache_2018-D6 26T171838.bak 
     web.xml 
     11 KB 
  2. 上图所示bak文件就是刚刚创建的“my\_bjroad\_cache”切图配置文件。
  3. 使用上述切图配置对矢量地图进行切图
  4. test:bj_road_in_city 
     Configure the resource and publishing information for the current layer 
     Data Publishing Dimensions Tile Caching 
     Tile cache configuration 
     Create a cached layer for this layer 
     Enable tile caching for this layer 
     Enable In Memo"/ Caching for this Layer. 
     SlobStore 
     (*) Default alobStore 
  5. 在tile cacheing标签下，将“my\_bjroad\_cache”切图配置文件添加到地图服务中，点击保存
  6. Cached zoom levels 
     EPSG:900913 
     EPSG:4326 
     Add grid subset: 
     Published zoom levels 
     Choose One 
     GlobalCRS84PixeI 
     GlobalCRS84scaIe 
     my_bjroad_cache 
     Grid subset bounds 
     Dynamic 
     Dynamic 

* 1. tiger:tiger_roads 
     N/A 
     N/A 
     Seed.' Truncate Empty 
  2. 在seed中，选择切片方案进行切片
  3. Create a new task: 
     Number of tasks to use: 
     Type of operation: 
     Grid Set: 
     Format: 
     Zoom start: 
     Zoom stop: 
     Modifiable Parameters: 
     Bounding box: 
     01 
     Seed - generate missing tiles 
     EPSG:4326 
     EPSG:4326 
     EPSG:goog13 
     my _ bjroad_cach e 
     16 
     STYLES: 
     line 
     These are optional, approximate values are fine. 
     Submit 
  4. 点击提交执行切片
  5. List of currently executing tasks: 
     Id Layer 
     Status 
     Type 
     SEED 
     Estimated 
     140,128 
     # of tiles Tiles completed 
     Time elapsed 
     Estimating... 
     Time remaining Tasks 
     7 test: RUNNING 
     Refresh list 
     Estimating... 
     (Task 1 of 1) Kill Task 

* 1. (E:) GeoServer 2.13.1 
     webapps 
     cache 05 
     geoserver 
     WES-INF test bj_road in_city 
     Name 
     my 
     my 
     my 
     my 
     my 
     my 
     Size 
     bjroad 
     bjroad cache_D6 
     bjroad_cache_07 
     bjroad cache_D8 
     bjroad cache_Dg 
     bjr oad_ cache_ I O 
     Date modified 
     2018-6-26 17:28 
     2018-6-26 17:28 
     2018-6-26 17:28 
     2018-6-26 17:28 
     2018-6-26 17:28 
     2018-6-26 17:28 
     Type 
     File folder 
     File folder 
     File folder 
     File folder 
     File folder 
     File folder 

* 1. (E:) GeoServer 2.13.1 webapps 
     geoserver WE8-INF test bj_road in_city my bjroad cache_IO 26 II 
     1684 0741 .png 
     1685 0740.png 
     1686 0739.png 
     1687 0738.png 
     1688 0737.png 
     1684 0742.png 
     1685 0741 .png 
     1686 0740.png 
     1687 0739.png 
     1688 0738.png 
     16u 0743.png 
     1685_0742.png 
     1686 0741 .png 
     1687 0740.png 
     1688 0739.png 
     16u 0744.png 
     1685 0743.png 
     1686 0742.png 
     1687 0741 .png 
     1688 0740.png 
     1584 0745.png 
     1685_0744.png 
     1686 0743.png 
     1687 0742.png 
     1688 0741 .png 
     1685 0736.png 
     1685_0745.png 
     1686 0744.png 
     1687 0743.png 
     1688 0742.png 
     1685_0737.png 
     1686 0736.png 
     1686_0745.png 
     1687 0744.png 
     1688 0743.png 
     v Search 26_11 
     1685 0738.png 
     1686 0737.png 
     1687_0736.png 
     1687 0745.png 
     1688 0744.png 
     1685_0739.png 
     1686 0738.png 
     1687 0737.png 
     1588 0736.png 
     1588 0745.png 